

EXTRA PRACTICE 25**Solving Equations and Inequalities With Absolute Value****Use after Section 9.3**

Name _____

Examples: Solve.

a) $|3x - 5| = 16$

$$3x - 5 = -16 \text{ or } 3x - 5 = 16$$

$$3x = -11 \text{ or } 3x = 21$$

$$x = -\frac{11}{3} \text{ or } x = 7$$

The solution set is $\left\{-\frac{11}{3}, 7\right\}$.

b) $|3x - 5| \leq 16$

$$-16 \leq 3x - 5 \leq 16$$

$$-11 \leq 3x \leq 21$$

$$-\frac{11}{3} \leq x \leq 7$$

The solution set is $\left\{x \mid -\frac{11}{3} \leq x \leq 7\right\}$.

c) $|3x - 5| > 16$

$$3x - 5 < -16 \text{ or } 3x - 5 > 16$$

$$3x < -11 \text{ or } 3x > 21$$

$$x < -\frac{11}{3} \text{ or } x > 7$$

The solution set is $\left\{x \mid x < -\frac{11}{3} \text{ or } x > 7\right\}$.

Solve.

1. $|8x - 3| > 21$ _____

2. $|y - 2| \leq 7$ _____

3. $|5x + 8| < 23$ _____

4. $|9 - 2x| = 5$ _____

5. $|x| = 4$ _____

6. $\left|\frac{1}{2}y - 3\right| \geq 3$ _____

7. $|y + 9| \leq 2$ _____

8. $\left|y + \frac{1}{3}\right| > \frac{4}{3}$ _____

9. $|-4x + 3| > 13$ _____

10. $\left|\frac{5}{8}x\right| < 10$ _____

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11. $|10y - 1.3| = 4.7$ _____

12. $|9 - 4x| \geq 15$ _____

13. $|x + 9| > 17$ _____

14. $\left|\frac{3}{4} + x\right| = \frac{1}{4}$ _____

15. $|9 - y| > 11$ _____

16. $|y| \leq \frac{1}{5}$ _____

17. $\left|\frac{3}{7}y\right| > \frac{3}{7}$ _____

18. $|3 - x| = 2$ _____

19. $|5x - 2| \geq 15$ _____

20. $|17 - 4x| < 23$ _____

21. $|y - 3| = 51$ _____

22. $|19 - x| > 19$ _____

23. $|8x - 3| \leq 5$ _____

24. $|2y - 9| < 15$ _____

25. $|y| > 9$ _____

26. $\left|3y - \frac{5}{9}\right| \leq \frac{4}{9}$ _____

27. $|8 - 3y| < 35$ _____

28. $|0.2x + 0.5| \geq 0.9$ _____

29. $\left|x - \frac{2}{9}\right| \geq \frac{4}{9}$ _____

30. $|34 - 4y| \leq 14$ _____